COMPREHENSIVE MONITORING PROGRAM

Contract Number DAAA15-87-0095

DRAFT FINAL TECHNICAL PLAN

Version 3.3

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GROUND WATER

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THIS ADDENDUM DETAILS MODIFICATIONS PROPOSED FOR THE CMP GROUNDWATER MONITORING PROGRAM. THESE MODIFICATIONS ARE BASED ON PREVIOUS CMP MONITORING EXPERIENCE AND ARE DIRECTED TOWARD OPTIMIZING NETWORK EFFICIENCIES AND MAXIMIZING DATA UTILITY.

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COMPREHENSIVE MONITORING PROGRAM
GROUND-WATER ELEMENT
FY90/91 DRAFT FINAL TECHNICAL PLAN ADDENDUM

This addendum details modifications proposed for the CMP ground-water monitoring program. These modifications are based on previous CMP monitoring experience and are directed toward optimizing network efficiencies and maximizing data utility. Data gathered during the first two years of the CMP provide comprehensive data sets for RI/FS verification and system operational purposes. These data, in addition to data from the RI/FS, indicate that the hydrologic system at RMA is relatively static with respect to contaminant migration when examined over a one to two year time frame. Therefore, the proposed modifications include revisions of the sampling frequency for the annual and semiannual monitoring programs. It is proposed that the annual monitoring program be replaced with a biennial monitoring event and the semiannual monitoring program be replaced with an annual "benchmark wells" monitoring event. Quarterly water-quality sampling will continue to be conducted in support of IRAs. Figure 1 shows the current and proposed monitoring schedules. It is proposed that the biennial monitoring event will occur in the first quarter of even-numbered fiscal years and the benchmark monitoring event will occur in the first quarter of odd-numbered fiscal years. The proposed adjustments are consistent with the purpose and specific objectives of the CMP ground-water element as outlined in the Final Technical Plan (June 1989).

Water-Level Monitoring Program

This addendum proposes no major modifications to the current water-level monitoring well network. This network has consistently grown since the CMP program began in 1988. This growth is attributable, in large part, to the addition of newly-installed wells. The FY89 water-level monitoring network (1013 wells) is shown in Table 1.

Water-Quality Monitoring Program

The Biennial Sampling Round:

1988 and 1989 CMP analytical results indicate that regional contaminant distribution patterns have not significantly changed in areas unaffected by current IRA and boundary system cleanup efforts. Therefore, a biennial regional monitoring network is proposed to replace the current annual monitoring network. This sampling round is essentially the same monitoring network as the former annual event, but the proposed sampling frequency has been changed to every other year. It remains the largest network for CMP water-quality sampling. Figures 2 and 3 show locations for proposed

biennial unconfined and confined flow system monitoring well networks, respectively, and Table 2 lists these wells.

The Fall 1989 annual event consisted of approximately 620 wells. Approximately 630 wells are proposed for the new biennial event (Table 2). Wells to be sampled in the event include wells in the Benchmark and Basin F IRA quarterly sampling networks. The size of the biennial monitoring network will provide for continued detail in interpreting contaminant plume configurations.

The Annual Benchmark Well Sampling Round:

The proposed benchmark well sampling round is a modification of the former semiannual sampling round. It is proposed that instead of sampling twice annually, however, benchmark wells be sampled once annually. Benchmark wells, which are a subset of the biennial network, will provide annual data for the purpose of assessing long-term contaminant concentration trends in response to contamination cleanup. To a lesser extent, the benchmark well monitoring program will provide support to Interim Response Action (IRA) areas and areas of current interest or priority. Figures 4 and 5 show locations for the proposed unconfined and confined flow system monitoring wells comprising the benchmark well network. Table 3 lists these wells.

Minor alterations to the benchmark monitoring network may be made in the future as the monitoring needs of the different IRAs change. The majority of the wells comprising the benchmark monitoring network, however, will not be changed as constancy and sampling continuity are critical factors for assessing long-term trends. The well selection criteria for the benchmark monitoring network remains largely unchanged from those listed in the Final Technical Plan (June 1989).

The Quarterly Sampling Round:

The quarterly monitoring event has been expanded to include an additional thirteen wells installed to monitor new IRA facilities. Figure 6 presents the locations of new wells along with wells currently in the quarterly monitoring network for the Basin F IRA. The new wells are numbered 26160 through 26171, and 26173. In addition, five wells have been added to the quarterly sampling round to support the Basin A Neck IRA and the Ground-water System North of Basin F IRA. These wells, 26501, 26503, 35505, 35506, and AMW-201 are shown on Figure 2. The total number of wells in the quarterly monitoring network is now 69 (Table 4).

Laboratory Analysis Program

Since its inception, the CMP list of analytical parameters has been largely the same for the annual, semiannual, and quarterly monitoring events. At this time, no changes to the analytical parameters list are proposed for the biennial, benchmark, and quarterly monitoring events.

In the future, changes to the list of parameters may be made based on annual assessments of analytical results. Changes may include the addition or deletion of analytes or groups of analytes on an area-by-area basis.

Table 1 CMP Water-level Monitoring Network, FY89

Section Number	Total Wells	Wells
Unconfined Flow System Wells		
01	41	001, 004, 007, 008, 010, 011, 012, 014, 016, 018, 019, 021, 024, 030, 033, 041, 044, 047, 049, 055, 061, 068, 069, 070, 073, 074, 075, 078, 501, 510, 514, 518, 522, 525, 528, 534, 537, 554, 568, 586, 588
02	28	001, 002, 003, 005, 006, 007, 008, 011, 014, 020, 023, 026, 034, 037, 040, 049, 050, 052, 055, 056, 058, 059, 520, 545, 578, 580, 583, 585
03	5	001, 002, 005, 011, 517
04	39	007, 008, 010, 013, 014, 015, 016, 017, 019, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 035, 036, 037, 038, 039, 040, 041, 042, 043, 044, 045, 046, 047, 048, 049, 050, 051, 076, 077, 525
06	2	002, 003
07	2	001, 003
08	2	002, 003
09	10	002, 005, 006, 007, 008, 010, 011, 013, 014, 015
11	4	002, 005, 006, 007
12	6	001, 002, 005, 007, 008, 009
19	3	001, 003, 004
22	17	004, 006, 008, 015, 016, 018, 019, 020, 021, 022, 033, 036, 040, 043, 049, 053, 060
23	83	002, 004, 007, 010, 011, 013, 016, 021, 025, 026, 028, 029, 030, 036, 039, 040, 045, 046, 047, 049, 050, 053, 057, 058, 059, 072, 079, 084, 085, 092, 094, 095, 096, 102, 106, 108, 110, 118, 119, 120, 121, 122, 123, 125, 134, 135, 140, 142, 146, 150, 151, 157, 159, 160, 166, 178, 179, 182, 185, 188, 191, 196, 197, 198, 199, 202, 203, 204, 205, 206, 207, 208, 211, 220, 223, 226, 231, 232, 235, 237, 238, 239, 241
24	87	001, 003, 004, 007, 010, 013, 014, 015, 016, 017, 018, 019, 020, 021, 023, 024, 025, 027, 041, 046, 049, 051, 052, 055, 056, 057, 058, 062, 063, 064, 081, 085, 086, 092, 093, 094, 095, 096, 097, 098, 101, 102, 103, 104, 105, 106, 107, 108, 111, 112, 113, 114, 117, 121, 122, 123, 124, 127, 128, 130, 135, 149, 150, 151, 152, 158, 161, 162, 163, 164, 165, 166, 173, 178, 179, 180, 181, 183, 184, 185, 187, 188, 191, 196, 199, 200, 201

Table 1 CMP Water-Level Monitoring Network, FY89 (continued)

Section Number	Total Wells	Wells
25	19	001, 003, 011, 015, 018, 022, 028, 035, 038, 041, 042, 043, 044, 046, 047, 048, 052, 054, 055
26	49	006, 010, 015, 016, 017, 019, 020, 040, 041, 046, 048, 049, 050, 062, 063, 065, 068, 071, 073, 076, 081, 083, 085, 088, 091, 093, 124, 127, 133, 143, 145, 148, 154, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 173
27	43	002, 003, 004, 005, 006, 007, 009, 010, 011, 015, 016, 018, 025, 031, 037, 040, 041, 042, 043, 044, 045, 049, 051, 053, 057, 062, 063, 064, 066, 068, 070, 071, 072, 074, 075, 077, 080, 081, 082, 083, 084, 085, 086
28	14	003, 006, 008, 012, 014, 018, 020, 021, 022, 023, 024, 027, 503, 513
30	3	001, 002, 009
31	5	002, 003, 005, 009, 016
32	2	001, 004
33	53	001, 002, 014, 018, 019, 020, 021, 022, 023, 024, 025, 030, 033, 048, 049, 050, 053, 054, 060, 061, 062, 063, 064, 065, 066, 067, 068, 069, 070, 071, 072, 073, 074, 075, 076, 077, 078, 079, 500, 501, 502, 505, 507, 509, 510, 512, 576, 577, 579, 580, 581, 582, 583
34	5	002, 005, 008, 009, 515
35	22	007, 013, 014, 023, 025, 030, 040, 047, 048, 052, 053, 058, 061, 065, 069, 077, 079, 087, 088, 090, 091, 092
36	43	013, 017, 056, 060, 062, 063, 065, 067, 068, 069, 073, 075, 076, 077, 081, 082, 084, 085, 086, 087, 089, 090, 093, 109, 112, 137, 139, 141, 142, 145, 146, 163, 164, 165, 166, 167, 168, 169, 177, 180, 181, 184, 185
Off-Post	68	37304, 37306, 37307, 37308, 37309, 37310, 37312, 37313, 37320, 37323, 37327, 37330, 37331, 37332, 37333, 37334, 37335, 37336, 37337, 37338, 37339, 37340, 37341, 37342, 37343, 37344, 37345, 37346, 37347, 37348, 37349, 37350, 37351, 37352, 37353, 37354, 37355, 37356, 37358, 37359, 37360, 37361, 37362, 37363, 37364, 37366, 37367, 37368, 37369, 37370, 37371, 37373, 37374, 37377, 37378, 37381, 37382, 37383, 37385, 37386, 37389, 37391, 37392, 37395, 37396, 37397, 37398, 37399

Total Unconfined Flow System Wells = 655

Table 1 CMP Water-Level Monitoring Network, FY89 (continued)

Section Number	Total Wells	Wells
Confined Flow System Wells		
01	29	015, 022, 023, 025, 028, 029, 031, 032, 034, 035, 036, 037, 039, 040, 042, 043, 045, 046, 048, 050, 067, 071, 072, 076, 077, 079, 080, 081, 082
02	33	004, 009, 010, 012, 013, 015, 016, 018, 019, 021, 022, 024, 025, 027, 028, 030, 031, 032, 033, 035, 036, 038, 039, 041, 042, 043, 044, 045, 046, 047, 048, 057, 060
03	5	003, 004, 006, 007, 012
04	3	009, 011, 012
05	3	001, 002, 003
06	2	004, 005
07	2	004, 005
08	1	004
09	2	003, 004
11	2	003, 004
12	2	003, 004
19	10	002, 005, 006, 007, 011, 015, 016, 017, 018, 019
22	8	023, 024, 027, 028, 030, 031, 079, 080
23	31	055, 144, 161, 176, 177, 180, 181, 183, 184, 186, 187, 189, 190, 192, 193, 200, 201, 209, 218, 219, 221, 222, 224, 225, 227, 228, 229, 230, 233, 234, 236
24	19	080, 082, 083, 087, 089, 109, 125, 126, 136, 137, 159, 167, 168, 171, 172, 174, 175, 197, 198
25	26	004, 007, 008, 009, 010, 012, 013, 014, 016, 017, 019, 020, 021, 023, 024, 026, 029, 031, 033, 034, 037, 039, 040, 049, 050, 051

Table 1 CMP Water-Level Monitoring Network, FY89 (continued)

Section Number	Total Wells	Wells
26	54	023, 024, 025, 026, 027, 028, 029, 047, 051, 055, 056, 057, 058, 060, 061, 064, 066, 067, 069, 072, 074, 075, 077, 079, 080, 082, 084, 086, 089, 090, 092, 094, 096, 097, 123, 128, 129, 130, 134, 135, 136, 140, 141, 142, 144, 146, 147, 149, 150, 151, 152, 153, 155, 156
27	3	054, 055, 058
28	4	025, 026, 028, 029
29	2	002, 003
30	7	004, 005, 006, 007, 008, 010, 011
31	5	006, 007, 008, 010, 011
32	2	002, 003
33	9	015, 026, 027, 028, 029, 031, 032, 034, 035
34	8	003, 004, 006, 007, 010, 011, 012, 013
35	37	005, 008, 009, 012, 015, 016, 017, 027, 028, 032, 033, 036, 038, 039, 041, 050, 051, 054, 055, 056, 059, 062, 063, 066, 067, 068, 070, 071, 073, 074, 078, 080, 081, 082, 083, 084, 089
36	35	010, 024, 029, 036, 043, 057, 061, 066, 072, 078, 079, 083, 092, 099, 104, 105, 110, 113, 114, 117, 118, 119, 121, 122, 138, 140, 147, 158, 170, 171, 178, 179, 182, 183, 186
Off-Post	14	37316, 37317, 37318, 37319, 37321, 37322, 37365, 37372, 37376, 37379, 37380, 37387, 37388, 37390

Total Confined Flow System Wells = 358

Table 2 Proposed CMP Biennial Water Quality Monitoring Network

Section No.	Total Wells	Well Numbers
Unconfined Flow System Wells		
01	24	007, 008, 014, 017, 019, 020, 024, 027*, 036, 041, 047, 055, 061, 068, 073, 074, 075*, 078, 510, 511, 516, 517, 524, 525
02	17	003, 005, 007, 008, 014, 020*, 023*, 034*, 037, 040, 055, 056, 059, 505*, 509, 513, 545
03	6	002, 005, 010, 011, 517, 523
04	30	007, 008, 010, 014, 016, 019, 020, 021, 024, 026, 029, 030, 033, 036, 037, 038, 039, 041, 042, 043, 044, 045, 046, 047, 048, 049, 050, 076, 077, 524
06	2	002, 003
07	1	001
08	1	003
09	12	002, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015
11	4	002, 005, 007, 018
12	1	002
19	2	001, 003
22	11	006, 008*, 011*, 015, 016, 018, 019, 021, 043*, 051*, 053*
23	38	047*, 049^{+}, 050, 052, 053, 057*, 058, 085*, 095^{+}, 096, 106, 108^{+}, 118*, 123*, 142^{+}, 150, 151, 179^{+}, 182, 185, 188^{+}, 191^{+}, 197*, 198*, 202*, 203*, 204*, 205*, 220^{+}, 223, 226*, 231*, 232*, 235*, 237^{+}, 238^{+}, 239^{+}, 241^{+}, AMW-201^{+}
24	29	013, 027, 049, 063*, 081, 086, 092, 094, 101*, 106, 107, 111, 124, 127*, 135*, 161*, 163*, 164*, 166*, 181, 183, 184*, 185*, 188, 191*, 196, 199*, 200*, 201*
25	14	011, 018, 022, 038, 041, 042, 043, 044, 046, 047, 048, 052, 054, 055

Table 2 Proposed CMP Biennial Water Quality Monitoring Network (continued)

Section No.	Total Wells	Well Numbers
26	40	005, 006, 011*, 015+, 017+, 019+, 020+, 041+, 063, 065+, 068, 071+, 073+, 076*, 083+, 085+, 088, 127+, 133+, 145+, 148+, 154, 157+, 158*, 159, 160+, 161+, 162+, 163+, 164+, 165+, 166+, 167+, 168+, 169+, 170+, 171+, 173+, 501*, 503*
27	31	003*, 005, 007, 016+, 025, 028, 031, 037*, 040, 042, 043, 044*, 049, 051, 053*, 056*, 057*, 059*, 062*, 064*, 071*, 072*, 073*, 074*, 076*, 079*, 082*, 083*, 084, 085*, 086*
28	5	002*, 018, 022, 023*, 027
30	5	009, 018, 019, 020, 021
31	5	005, 012, 014, 015, 016
32	1	004
33	20	001, 002, 025, 030, 033, 048*, 063, 064, 066, 068, 074, 075, 076, 077*, 078*, 079*, 509, 514, 578, 581*
34	5	002, 005, 008, 009, 508
35	21	013, 018, 020, 023, 034, 037, 052, 058, 061, 065, 077, 079, 087, 088, 090, 091, 092, 504, 505*, 506*, 507*
36	26	001, 056, 065, 069, 074, 075, 076, 080, 084, 090, 094, 108, 109, 112, 123, 139, 142, 146, 168, 169, 177, 180, 181, 184, 185, 592
Offpost	86	37304*, 37307*, 37308*, 37309*, 37312*, 37313*, 37320, 37323*, 37327*, 37330*, 37331*, 37333*, 37334*, 37335*, 37336, 37337*, 37338*, 37339*, 37341, 37342, 37343*, 37344, 37345*, 37346, 37347, 37348, 37349, 37350, 37351, 37352, 37353, 37354, 37355, 37356, 37357, 37358*, 37359, 37360, 37361, 37362*, 37363, 37364, 37366, 37367, 37368, 37369*, 37370*, 37371*, 37373*, 37374*, 37377*, 37378*, 37381*, 37382*, 37383, 37385*, 37386*, 37389*, 37391*, 37392*, 37395, 37396*, 37397, 37403, 37404, 37407*, 37428, 37429, 37430, 37433, 37434, 37438*, 37439*, 37441*, 37442, 37443, Other Wells - 005*, 198-608, 198-611, 198-614, DCGW01, DCGW03, SACMW03, SACMW08, SACMW11, SAC18

Total Unconfined Wells = 438

Table 2 Proposed CMP Biennial Water Quality Monitoring Network (continued)

Section No.	Total Wells	Well Numbers
Confined Flow System Wells		
01	18	015, 022, 025, 028*, 029*, 031, 032, 037, 048, 067, 071, 072, 076*, 077, 079, 080, 081, 082
02	16	018, 019, 021*, 025*, 030, 031, 035, 036, 039, 041, 043, 044, 047, 048, 057, 060
03	4	003, 004, 006, 012
04	3	009, 011, 012
05	1	001
06	2	004, 005
07	2	004, 005
08	1	005
09	1	003
11	1	004
12	2	003, 004
19	3	015, 016, 017
22	7	023*, 027*, 028*, 030*, 031*, 079*, 080
23	24	177*, 180^{+}, 181^{+}, 183*, 184, 186, 187, 189^{+}, 190^{+}, 192^{+}, 193^{+}, 200*, 201*, 218*, 219*, 221^{+}, 222^{+}, 224, 225, 227*, 230*, 233*, 234*, 236*
24	9	089, 136*, 168*, 171*, 172*, 174*, 175*, 197, 198
25	11	004, 009, 013, 014, 016, 017, 019, 039, 049, 050, 051
26	24	055, 058, 061, 066^{+}, 067^{+}, 069, 072^{+}, 075^{+}, 084^{+}, 086^{+}, 089, 090, 096, 129^{+}, 140^{+}, 142^{+}, 146^{+}, 149^{+}, 150^{+}, 151, 152, 153^{+}, 155^{+}, 156^{+}
27	4	054*, 055*, 058*, 060
28	2	025*, 028

Table 2 Proposed CMP Biennial Water Quality Monitoring Network (continued)

Section No.	Total Wells	Well Numbers
30	1	011
32	1	002
33	4	026, 031, 032, 034
34	5	003, 006, 011, 012, 013
35	22	008, 016, 017, 021, 036, 038, 039, 054, 062, 063, 066, 067, 068, 070, 071, 078, 080, 081, 082, 083, 084, 089
36	20	066, 083, 110, 114, 117, 119, 122, 148, 149, 154, 158, 159, 160, 170, 171, 178, 179, 182, 183, 186
Offpost	14	37316*, 37317*, 37318*, 37319*, 37321, 37322, 37365*, 37372*, 37376*, 37379*, 37380*, 37387*, 37388*, 37390*
Total Denver Fm Wells = 202		

+ IRA Monitoring Network Wells
* Benchmark Network Wells

Table 3 Proposed CMP Benchmark Water Quality Monitoring Network

Section No.	Total Wells	Well Numbers
Unconfined Flow System Wells		
01	2	027, 075
02	4	020, 023, 034, 505
22	5	008, 011, 043, 051, 053
23	27	047, 049+, 057, 085, 095+, 108+, 118, 123, 142+, 179+, 188+, 191+, 197, 198, 202, 203, 204, 205, 220+, 226, 231, 232, 235, 237+, 238+, 239+, 241+, AMW-201+
24	14	063, 101, 127, 135, 161, 163, 164, 166, 184, 185, 191, 199, 200, 201
26	33	011, 015+, 017+, 019+, 020+, 041+, 065+, 071+, 073+, 076, 083+, 085+, 127+, 133+, 145+, 148+, 157+, 158, 160+, 161+, 162+, 163, 164+, 165+, 166+, 167+, 168+, 169+, 170+, 171+, 173+, 501+, 503+
27	20	003, 016+, 037, 044, 053, 056, 057, 059, 062, 064, 071, 072, 073, 074, 076, 079, 082, 083, 085, 086
28	2	002, 023
33	5	048, 077, 078, 079, 581
35	3	505+, 506+, 507
Offpost	40	37304, 37307, 37308, 37309, 37312, 37313, 37323, 37327, 37330, 37331, 37333, 37334, 37335, 37337, 37338, 37339, 37343, 37345, 37358, 37362, 37369, 37370, 37371, 37373, 37374, 37377, 37378, 37381, 37382, 37385, 37386, 37389, 37391, 37392, 37396, 37407, 37438, 37439, 37441, Other Well - 005
Total Unconfined Flow System Wells = 156		

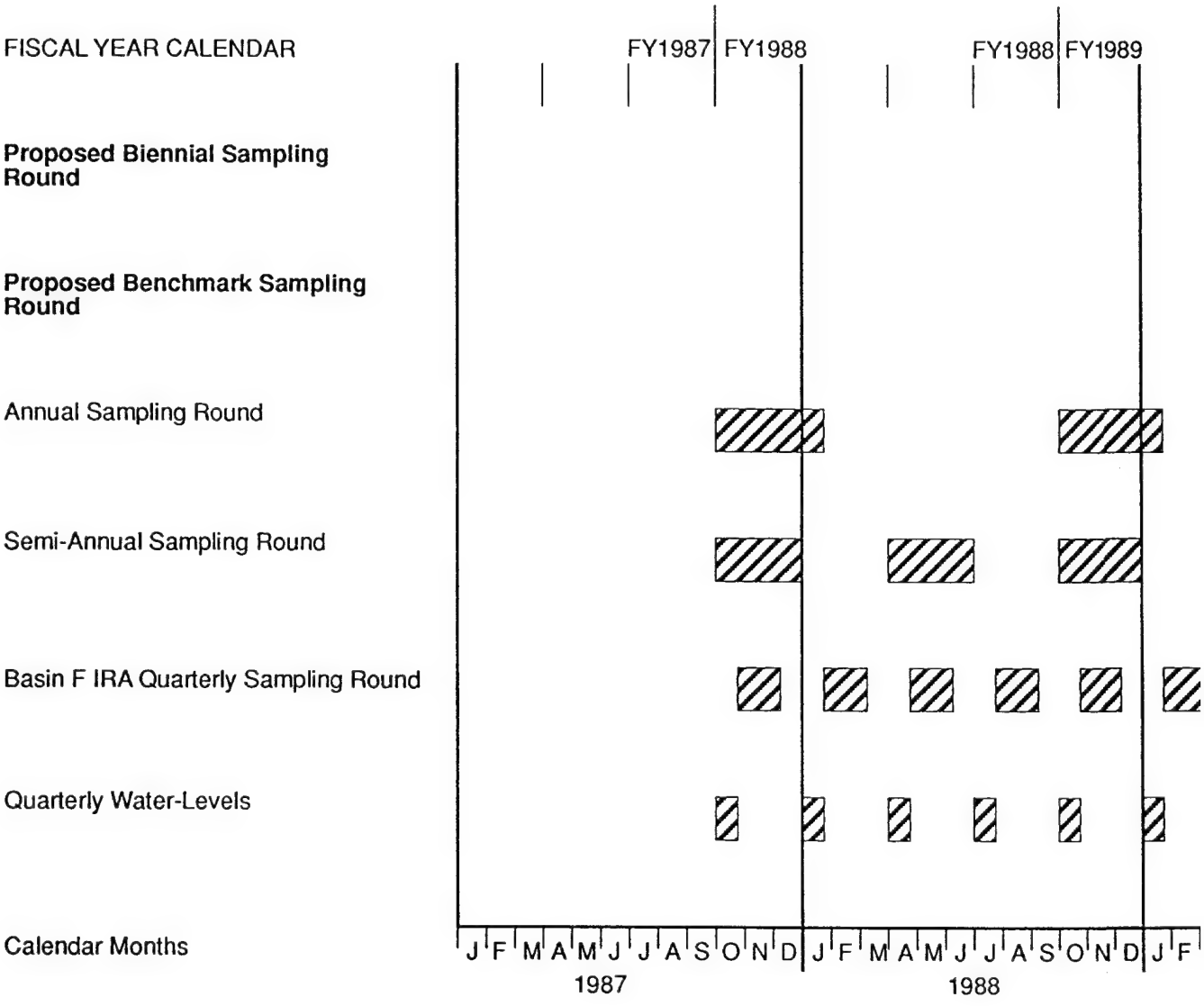
Table 3 Proposed CMP Benchmark Water Quality Monitoring Network (continued)

Section No.	Total Wells	Well Numbers
Confined Flow System Wells		
1	3	028, 029, 076
2	2	021, 025
22	6	023, 027, 028, 030, 031, 079
23	19	177, 180+, 181+, 183, 189+, 190+, 192+, 193+, 200, 201, 218, 219, 221+, 222+, 227, 230, 233, 234, 236
24	6	136, 168, 171, 172, 174, 175
26	15	066+, 067+, 072+, 075+, 084+, 086+, 129+, 140+, 142+, 146+, 149+, 150+, 153+, 155+, 156+
27	3	054, 055, 058
28	1	025
Offpost	12	37316, 37317, 37318, 37319, 37365, 37372, 37376, 37379, 37380, 37387, 37388, 37390
Total Confined Flow System Wells = 67		

+ IRA Monitoring Network Wells

Table 4 Proposed CMP IRA Quarterly Sampling Network

Section No.	Total Wells	Well Numbers
Unconfined Flow System Wells		
23	13	049, 095, 108, 142, 179, 188, 191, 220, 237, 238, 239, 241, AMW-201
26	30	015, 017, 019, 020, 041, 065, 071, 073, 083, 085, 127, 133, 145, 148, 157, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 173, 501, 503
27	1	016
35	2	505, 506
Total Unconfined Flow System Wells = 46		
Confined Flow System Wells		
23	8	180, 181, 189, 190, 192, 193, 221, 222
26	15	066, 067, 072, 075, 084, 086, 129, 140, 142, 146, 149, 150, 153, 155, 156
Total Confined Flow System Wells = 23		



Prepared for:
Program Manager for
Rocky Mountain Arsenal

Commerce City, Colorado

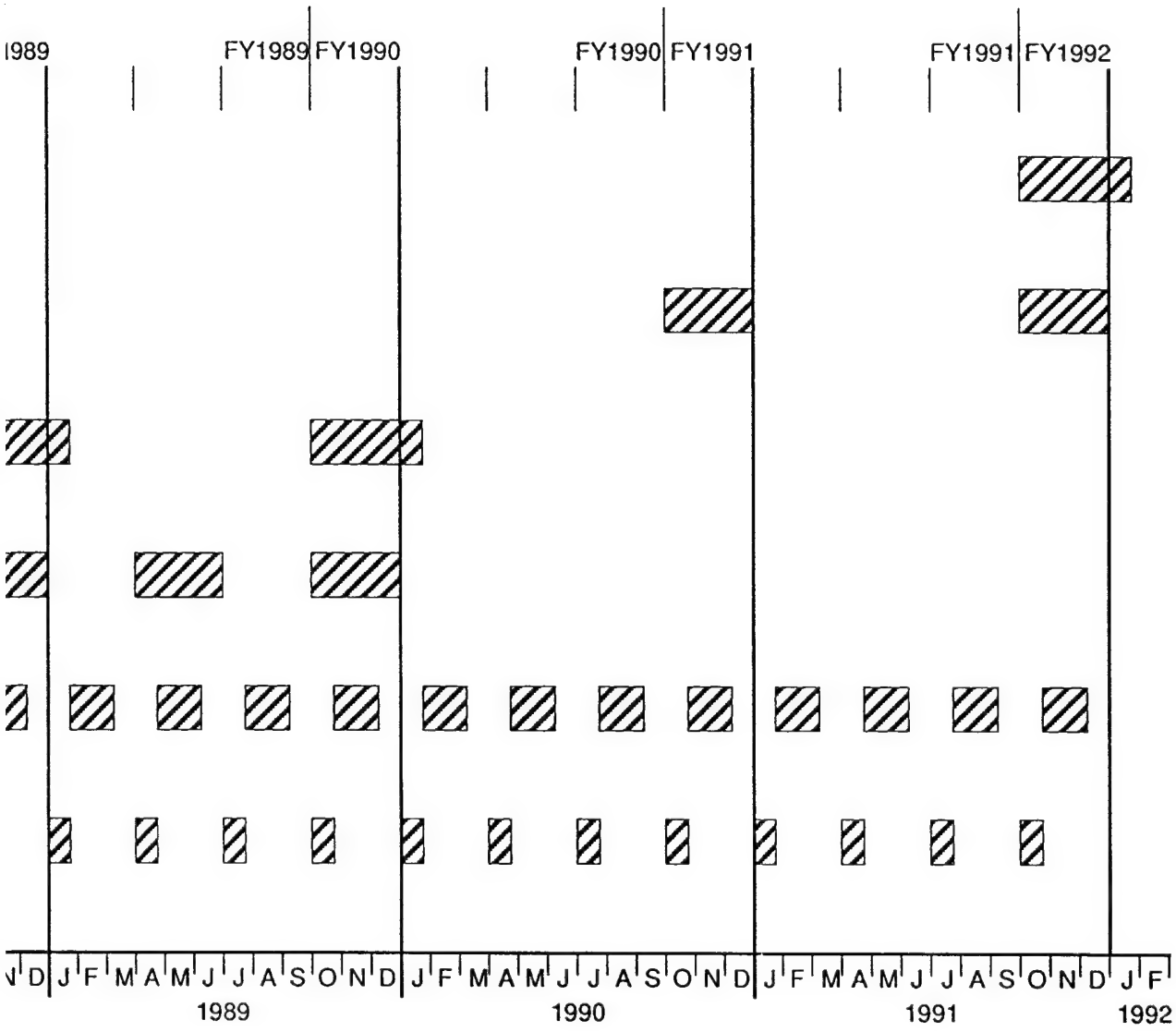
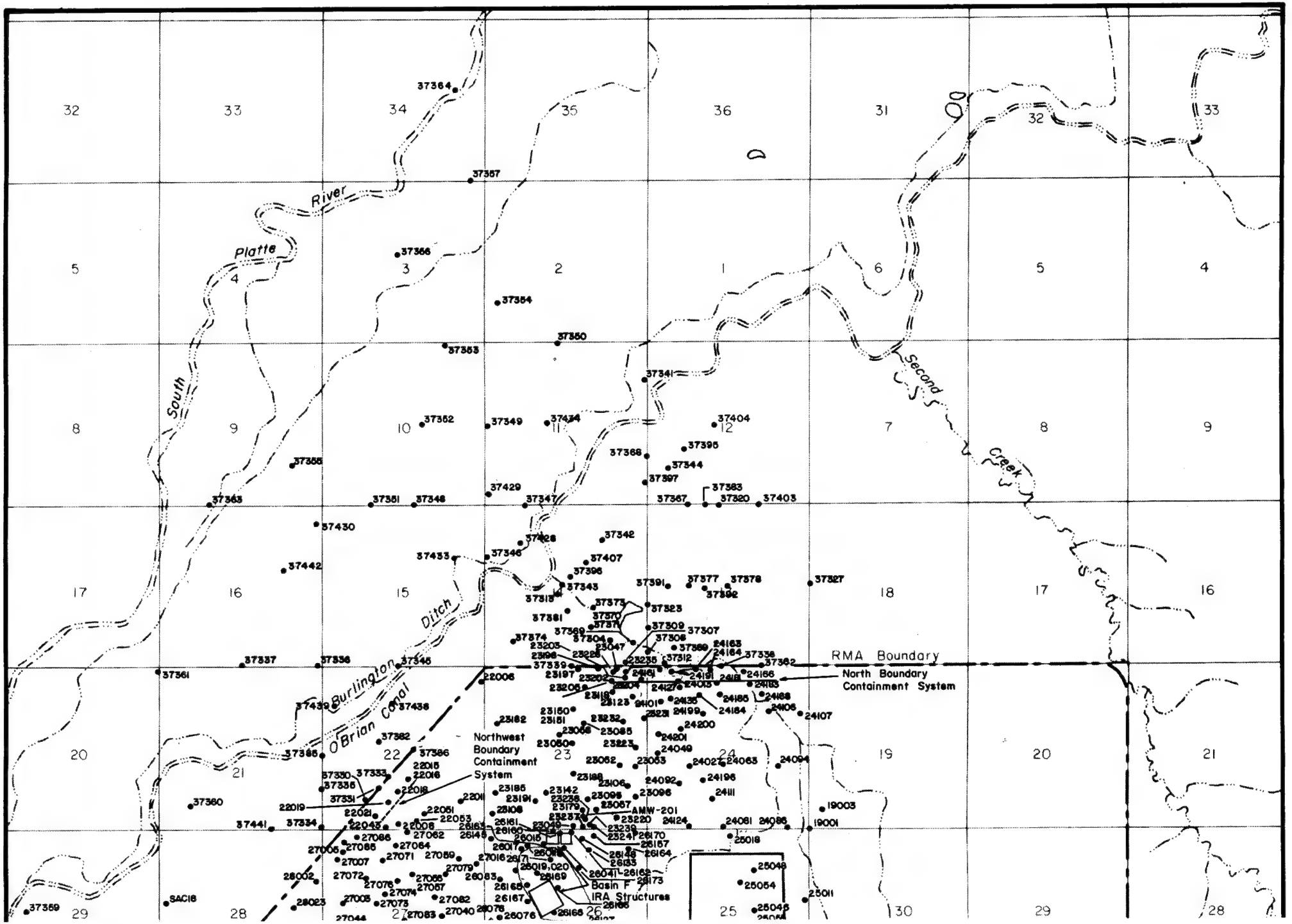
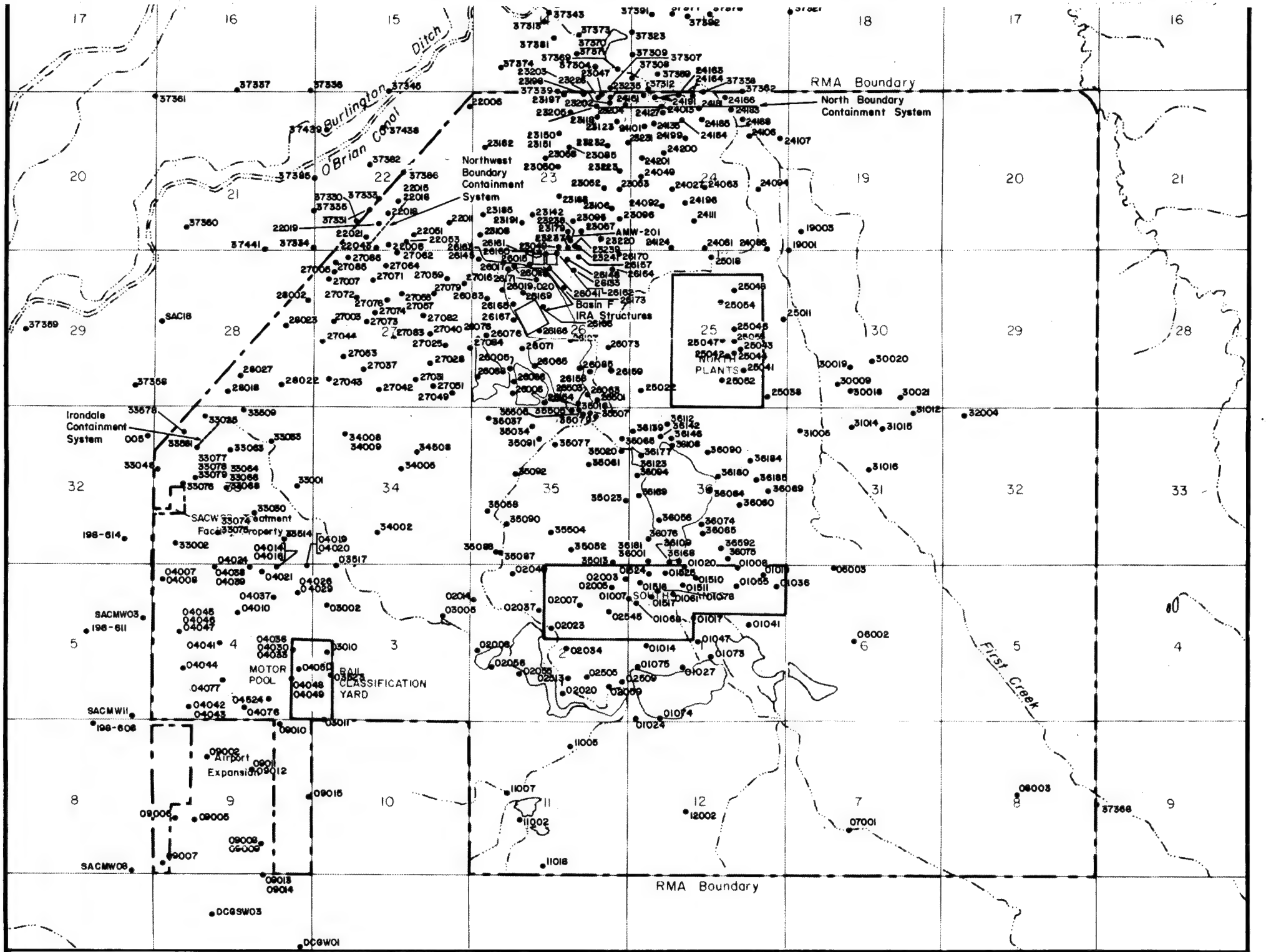


Figure 1
PROPOSED CMP MONITORING SCHEDULE
CMP Ground-Water Monitoring Technical Plan Addendum
Prepared by: R.L. Stollar and Associates
Harding Lawson Associates

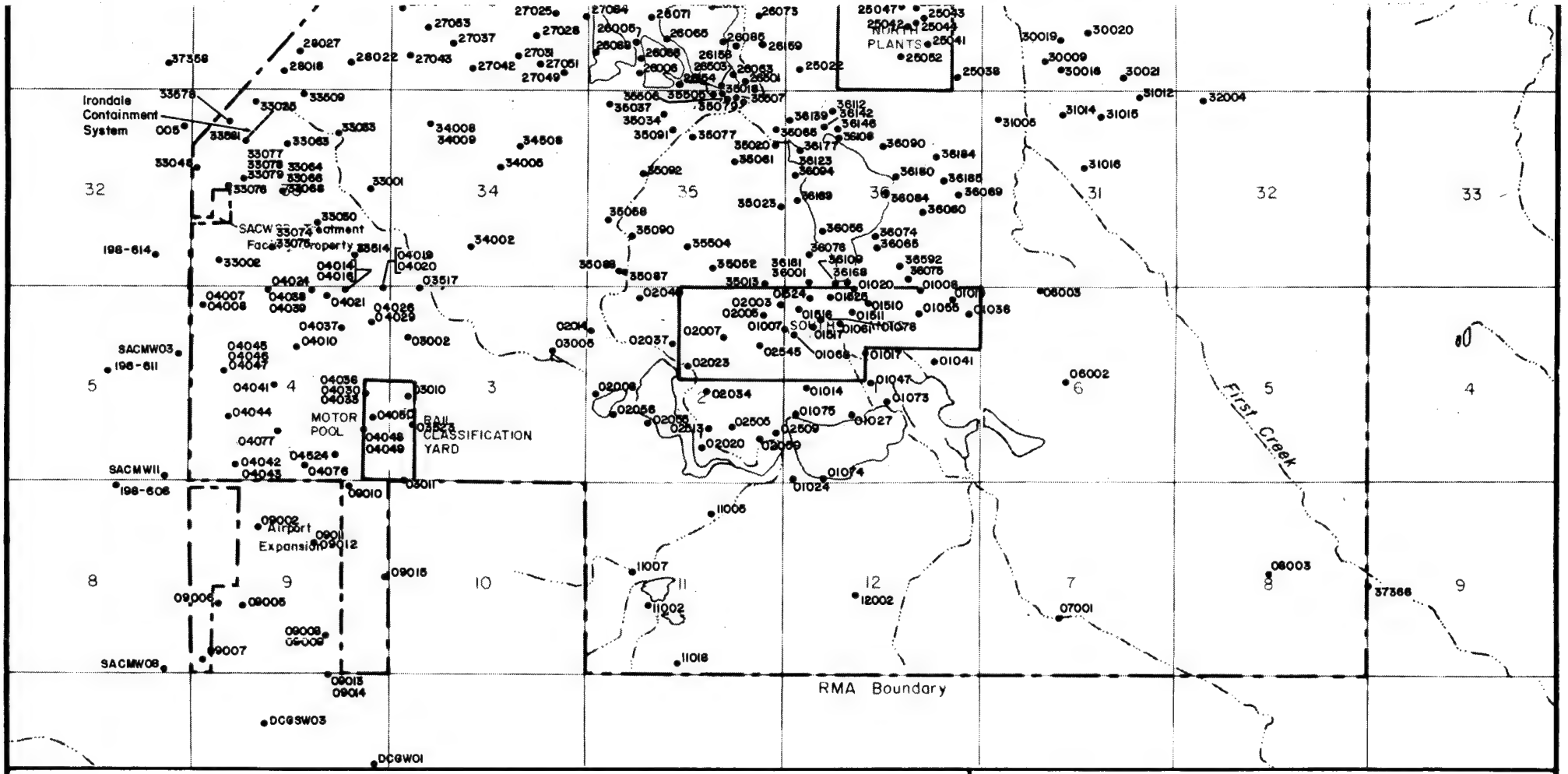

South Platte River
Second Creek
O'Brian Canal
Burlington Ditch
RMA Boundary
North Boundary Containment System
Northwest Boundary Containment System
AMW-201
Basin F
IRA Structures
SAC18



Explanation

Prepared for :

U.S. Army Program Manager for



Explanation

11007 **Unconfined Well Location and Well Identification Number**

Containment System

Physical Barrier

Hydraulic Barrier

N

0 4000 8000

FEET

Prepared for :

U.S. Army Program Manager for
Rocky Mountain Arsenal
Commerce City, Colorado

Prepared by :

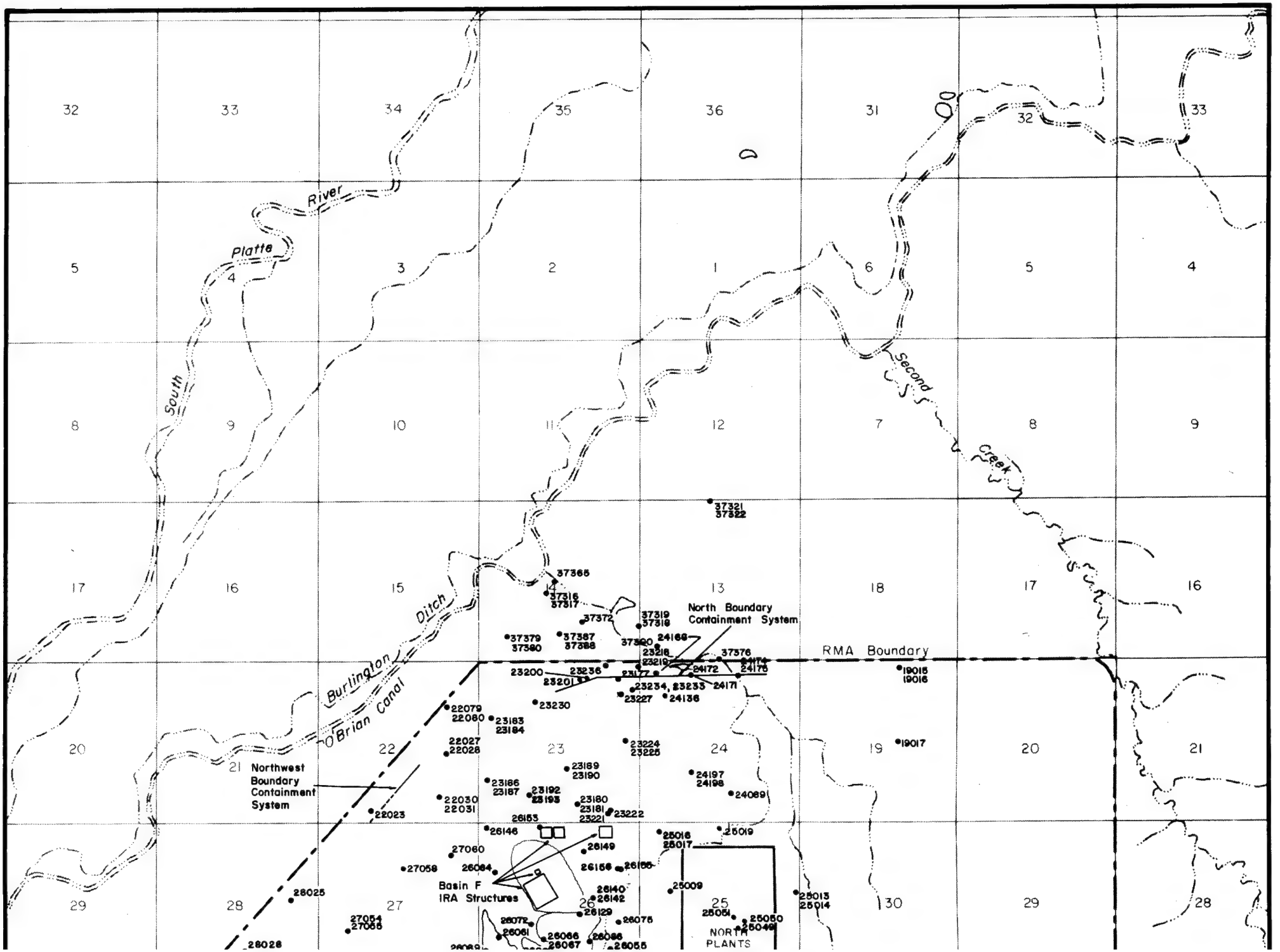
R.L. Stollar & Associates, Inc.
Harding Lawson Associates

Figure 2

Unconfined Flow System Wells

Proposed CMP Biennial

Sampling Network


South Platte River
Second Creek
Burlington Ditch
O'Brian Canal
North Boundary Containment System
RMA Boundary
Northwest Boundary Containment System
Basin F IRA Structures
NORTH PLANTS
37321
37322
37365
37316
37317
37372
37319
37318
37379
37380
37387
37388
37320
24168
23218
23219
37376
24174
24175
24172
23200
23236
23177
23201
23234
23233
24171
23227
24136
19015
19016
23230
22079
22080
23183
23184
22027
22028
23224
23225
19017
23189
23190
24197
24198
23186
23187
23192
23193
24089
22030
22031
23180
23181
23221
23222
22023
26153
26146
25016
25017
25019
27060
26149
27058
26084
26156
26155
26140
26142
25009
25013
25014
28025
27054
27055
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25051
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25049
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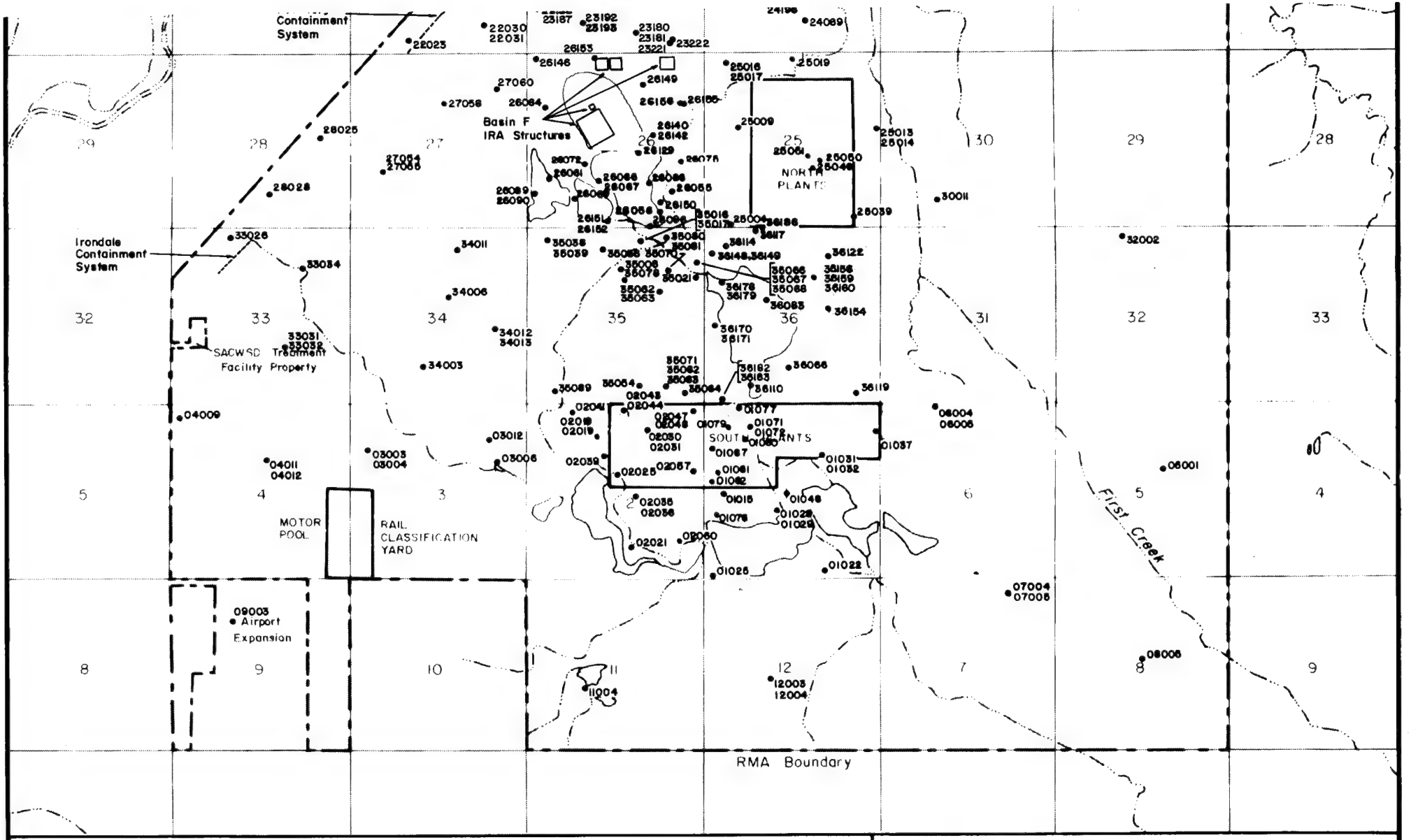
26086
26067
26055
28026
37321
37322



Explanation

- 34011 **Denver Formation Well Location and Well Identification Number**
- **Containment System**
- **Physical Barrier**
- **Hydraulic Barrier**

N

Prepared for :

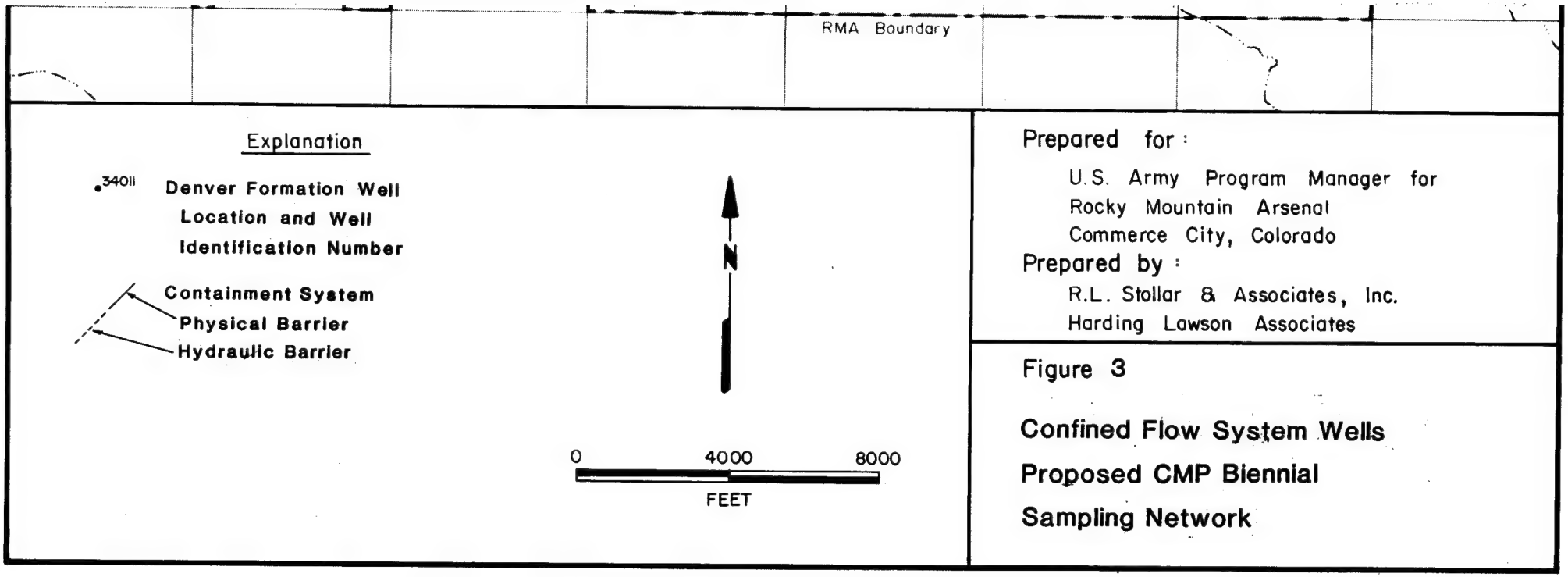
U.S. Army Program Manager for
Rocky Mountain Arsenal
Commerce City, Colorado

Prepared by :

R.L. Stollar & Associates, Inc.
Harding Lawson Associates

Figure 3

Confined Flow System Wells



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Rocky Mountain Arsenal
Commerce City, Colorado

Prepared by :

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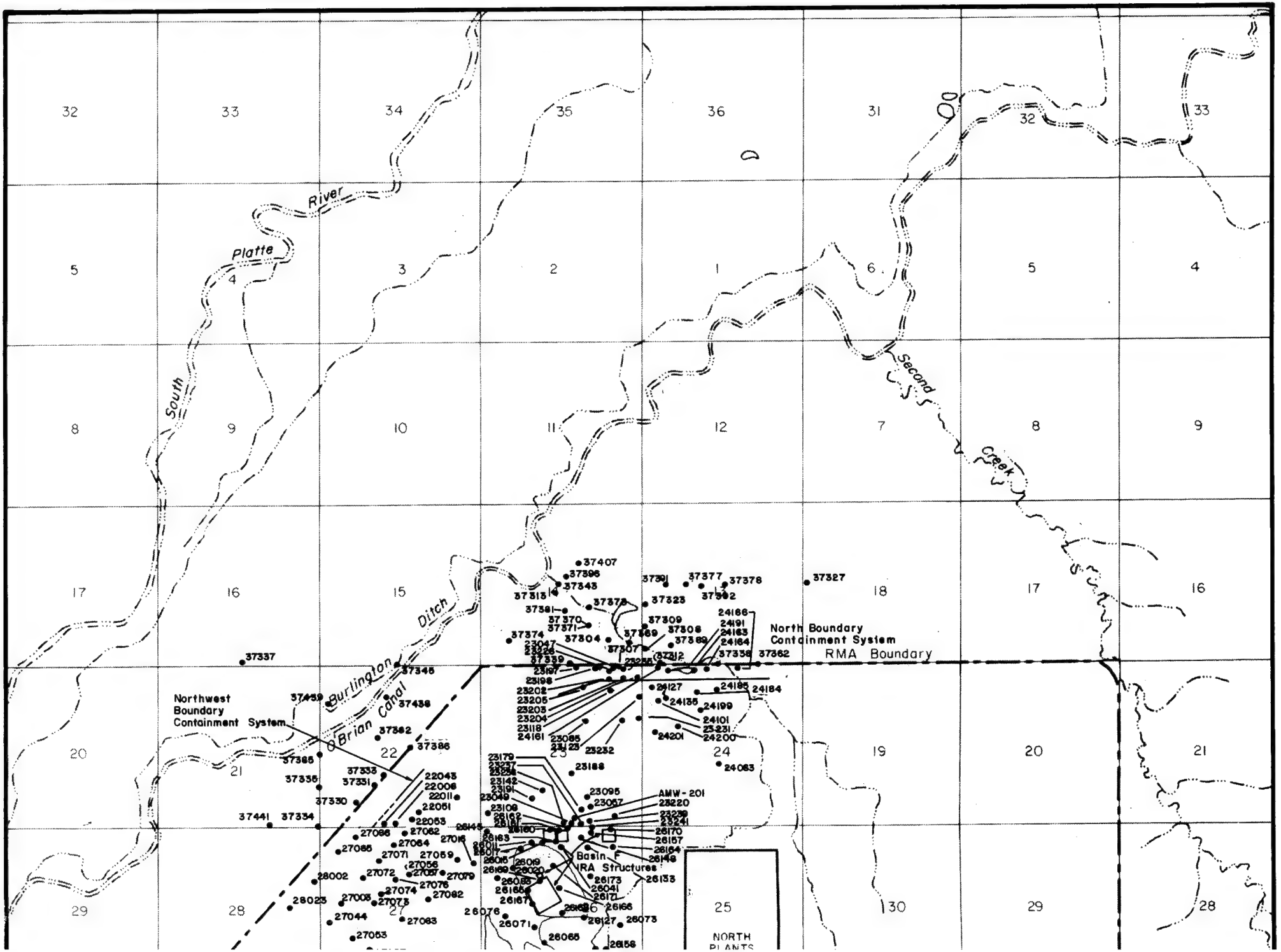
Harding Lawson Associates

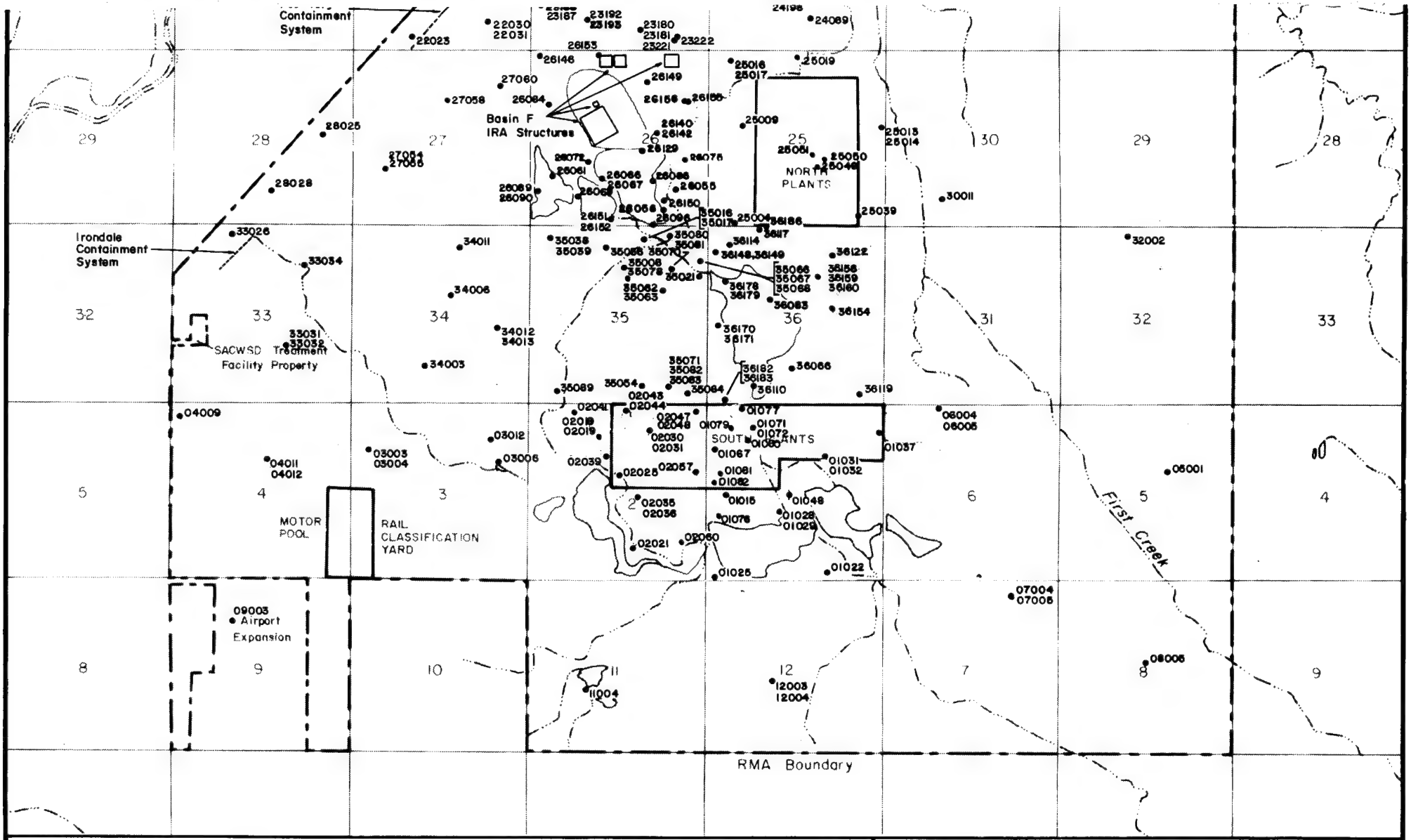
Figure 3

Confined Flow System Wells

Proposed CMP Biennial

Sampling Network


South Platte River
Second Creek
O'Brian Canal
Burlington Ditch
North Boundary Containment System
RMA Boundary
Northwest Boundary Containment System
AMW-201
Basin F
IRA Structures
NORTH PLANTS



Explanation

34011 **Denver Formation Well Location and Well Identification Number**

Containment System
Physical Barrier
Hydraulic Barrier

N

Prepared for :

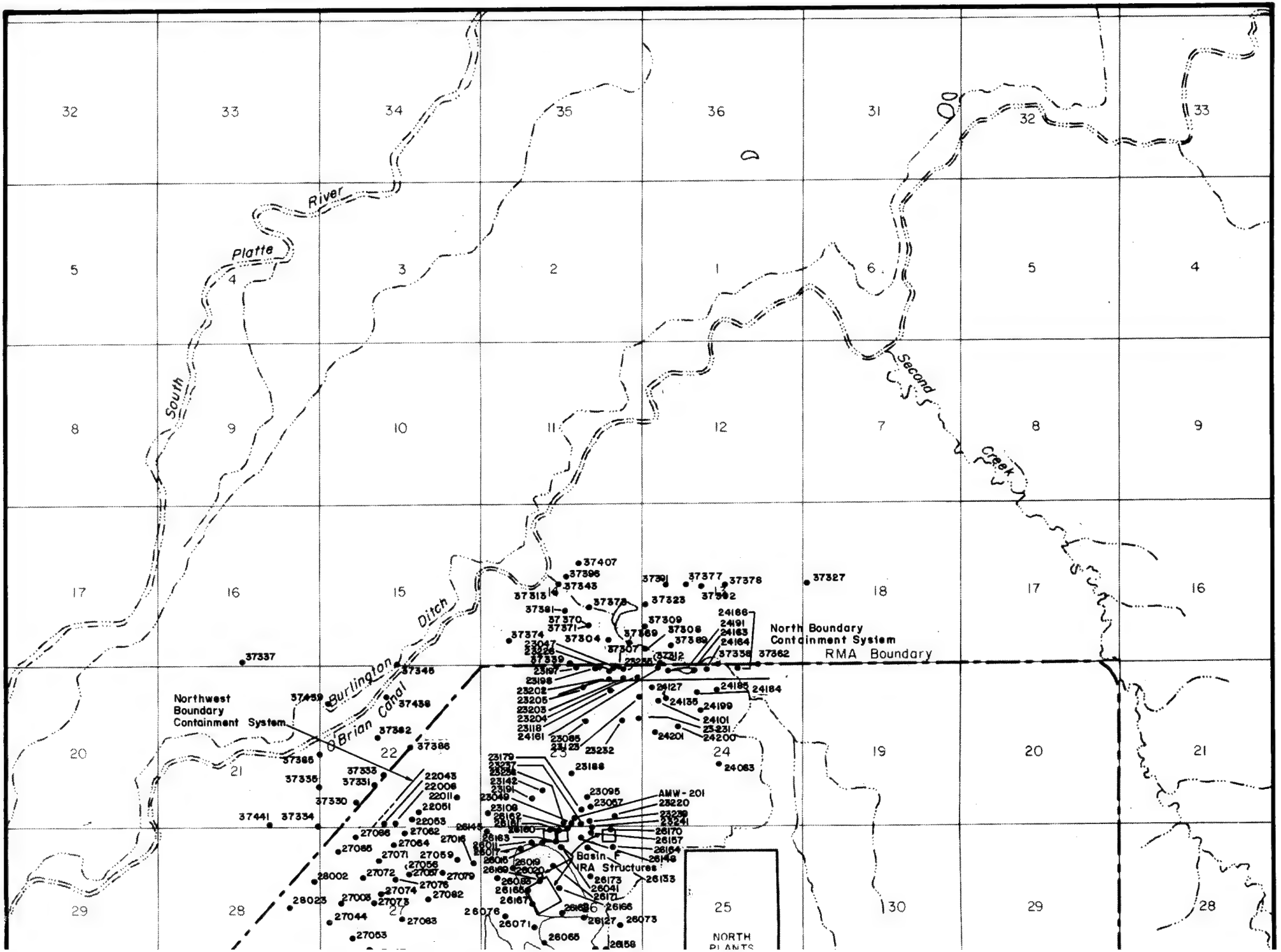
U.S. Army Program Manager for
Rocky Mountain Arsenal
Commerce City, Colorado

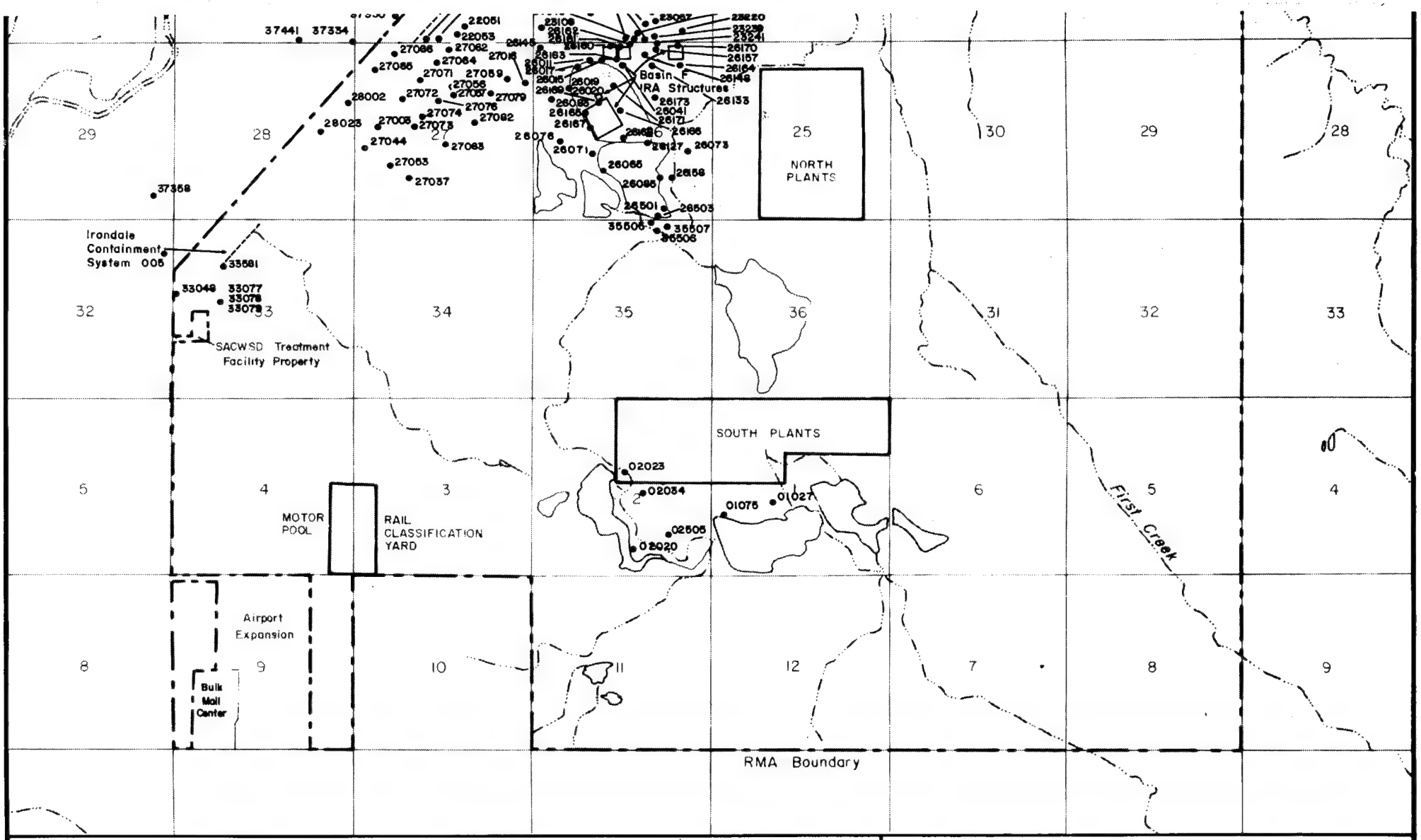
Prepared by :

R.L. Stollar & Associates, Inc.
Harding Lawson Associates

Figure 3

Confined Flow System Wells


South Platte River
Second Creek
Burlington Ditch
O'Brian Canal
North Boundary Containment System
RMA Boundary
Northwest Boundary Containment System
Basin F
IRA Structures
AMW-201
NORTH PLANTS



Explanation

3 561 • Unconfined Well Location and Well Identification Number

Containment System
Physical Barrier
Hydraulic Barrier

N

0 4000 8000

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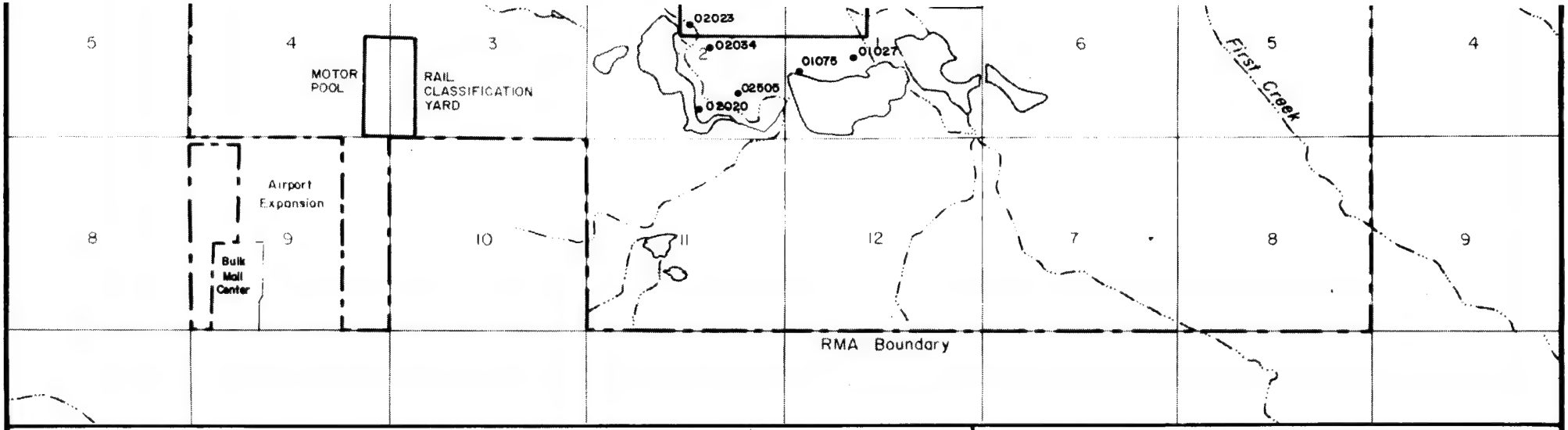
Rocky Mountain Arsenal
Commerce City, Colorado

Prepared by :

R.L. Stollar & Associates, Inc.
Harding Lawson Associates

Figure 4

Unconfined Flow System Wells



Explanation

3 561 • Unconfined Well Location and Well Identification Number

Containment System
Physical Barrier
Hydraulic Barrier

N

0 4000 8000
FEET

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U.S. Army Program Manager for
Rocky Mountain Arsenal
Commerce City, Colorado

Prepared by :

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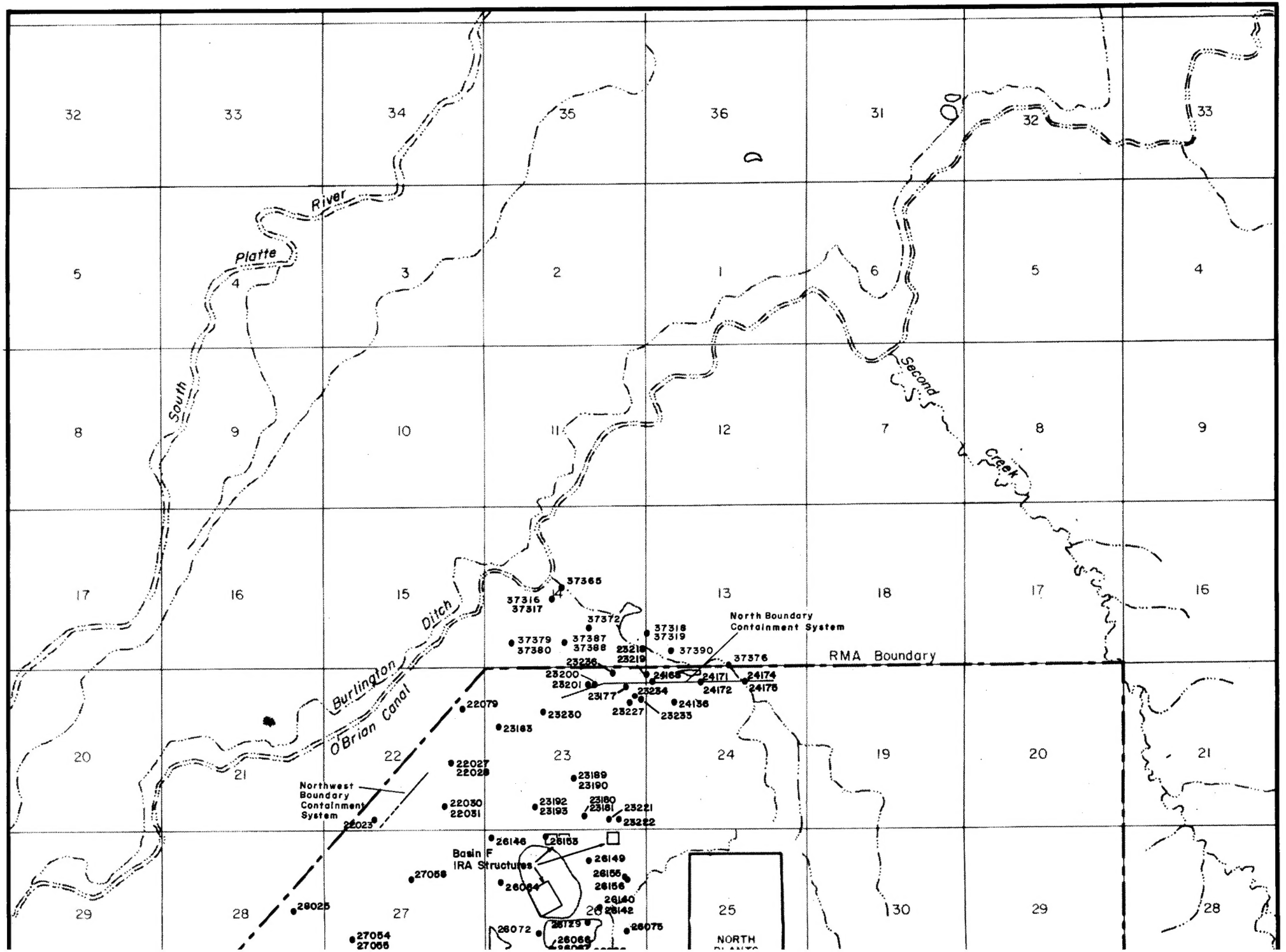
Figure 4

Unconfined Flow System Wells
Proposed CMP Benchmark
Sampling Network


South Platte River
Second Creek
Burlington Ditch
O'Brian Canal
RMA Boundary
North Boundary Containment System
Northwest Boundary Containment System
Basin F IRA Structures
NORTH
37365
37316
37317
37372
37318
37319
37379
37380
37387
37388
37390
37376
23216
23219
23226
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23201
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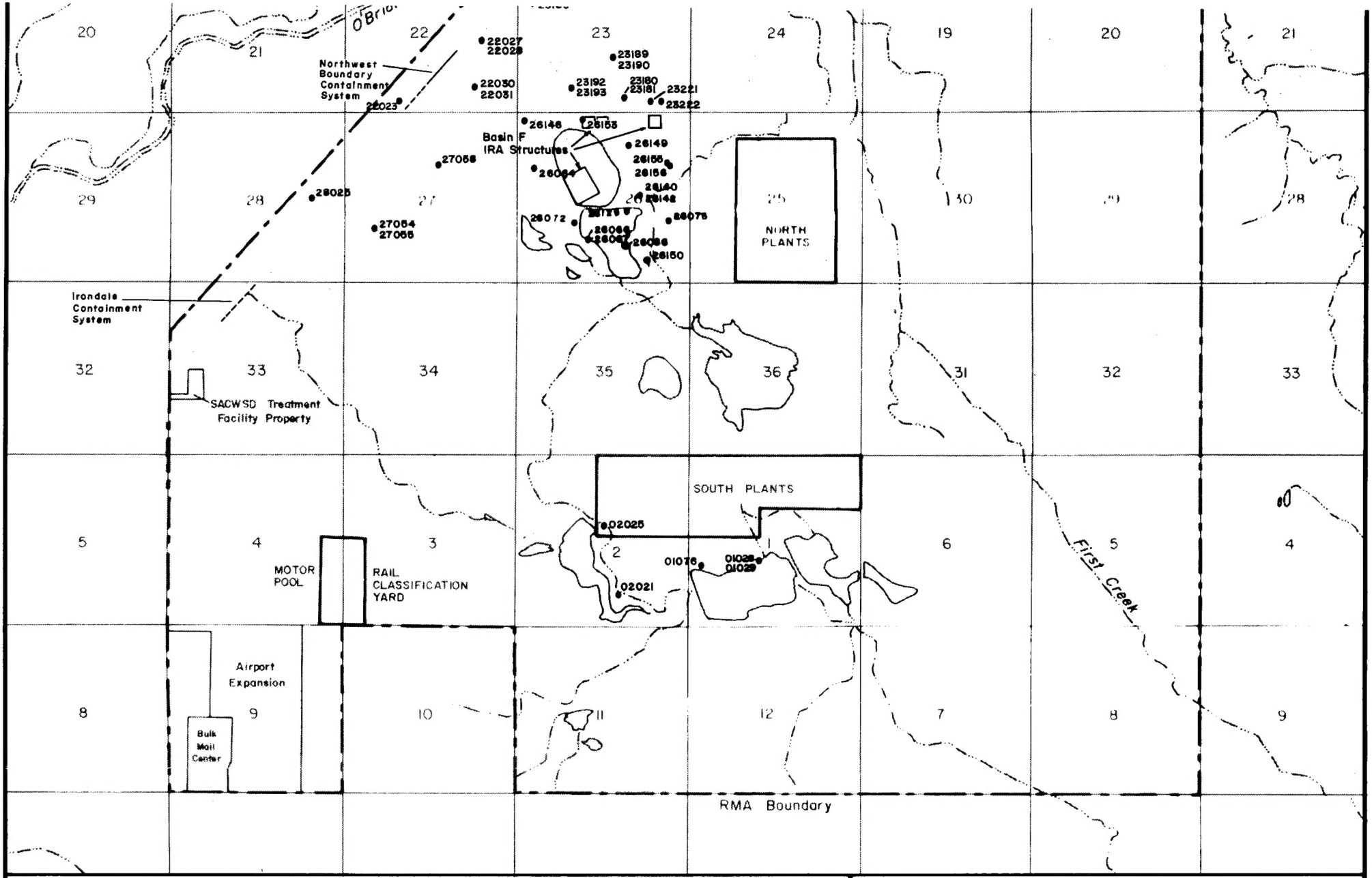


Explanation

27054● Well Location and Well Identification Number

Containment System
Physical Barrier
Hydraulic Barrier

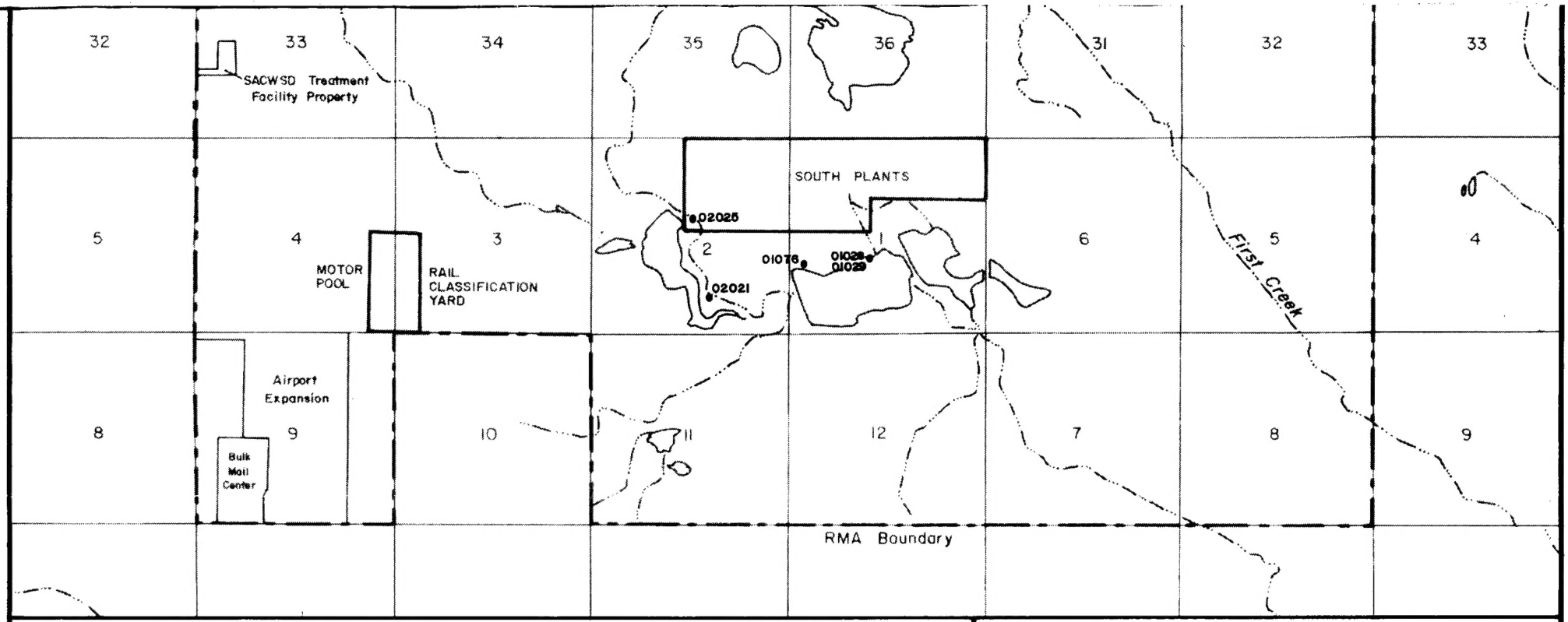
N

Prepared for:

Program Manager's Office for

Rocky Mountain Arsenal Cleanup

Commerce City, Colorado



Explanation

27054● Well Location and Well Identification Number

Containment System
Physical Barrier
Hydraulic Barrier

N

0 4000 8000
FEET

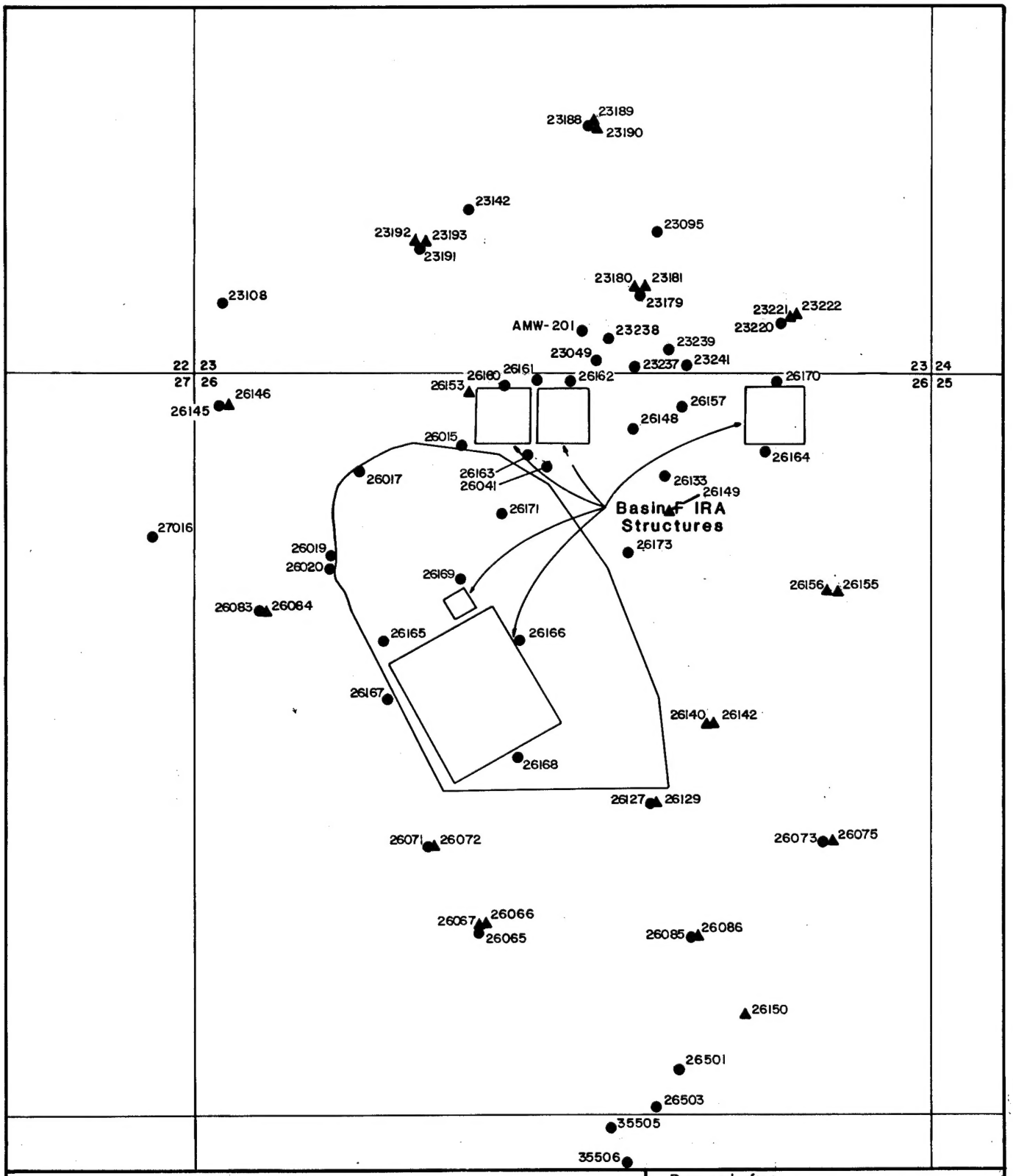
Prepared for:

Program Manager's Office for
Rocky Mountain Arsenal Cleanup
Commerce City, Colorado

FIGURE 5

Confined Flow System Wells
Proposed CMP Benchmark
Sampling Network

Prepared by: R.L. Stollar and Associates, Inc.
Harding Lawson Associates



EXPLANATION

26167● **Unconfined Well**

23086▲ **Denver Formation Well**

N

0 500 1000 Feet

0 200 400 Meters

Prepared for:
U.S. Army Program Manager for
Rocky Mountain Arsenal
Commerce City, Colorado

Prepared by:
R.L. Stollar & Associates, Inc.
Harding Lawson Associates

Figure 6

Quarterly Sampling IRA Support Network